

K1 wherein said channel region is formed of the crystallized semiconductor film.

REMARKS

At the outset, the Examiner is thanked for the review and consideration of the present application.

The Examiner's Office Action dated December 19, 2001 has been received and its contents reviewed. Claims 19-84 were pending in the present application. As claims 19-59, 63-71, 75-80, and 82 have been withdrawn from consideration, claims 60-62, 72-74, 81, 83 and 84 are pending, of which claims 60 and 72 are independent.

Turning now to the Office Action, claim 84 is objected to as containing a grammatical error. Accordingly, Applicants have amended the specification, as suggested by the Examiner, to correct the error.

Claim 84 stands rejected under 35 U.S.C. §103(a) as unpatentable over Masumo et al. (U.S. Patent No. 5,306,651 - hereafter Masumo) in view of Liu et al. (U.S. Patent No. 5,147,826 - hereafter Liu), and claims 60-62, 72-74, 81 and 83 stand rejected under 35 U.S.C. §103(a) as unpatentable over Masumo in view of Liu and further in view of Makita et al. (U.S. Patent No. 5,710,050 - hereafter as Makita). These rejections are respectfully traversed at least for the reasons provided below.

Applicants respectfully submit that the presently claimed invention recite, among other steps, forming a silicon nitride film and depositing a semiconductor film comprising amorphous silicon on the silicon nitride film. In the present invention, it is really important to form a silicon nitride film in contact with a silicon film in order to prevent the silicon film from being oriented along (111) plane. A silicon film crystallized in contact with silicon oxide tends to be oriented along the (111) plane due to the boundary energy therebetween since crystallized silicon oxide has a diamond structure, as described in the first paragraph of page 4 of the specification.

Masumo, on the other hand, does not recognize the importance on forming a silicon nitride film in contact with a silicon film, even though col. 5, lines 48-50 appears to suggest that passivation film 22 may be of SiO_x, SiN_x, SiO_xNy, TaO_x or the like. The mere inclusion of several compounds in a list of compounds does not, in itself, establish that each of the compounds is equivalent to the others for all purposes. In re *Jezl et al.* (CCPA 1968) 396 F2d 1009, 158 USPQ 98. Thus, as Masumo provides examples mainly using silicon oxide, and as Masumo does not recognize the advantage of silicon nitride, it would not be obvious utilize

silicon nitride and to combine the teaching of Masumo with the cited secondary references to make Applicants' claimed invention.

In view of the arguments set forth above, Applicants respectfully submit that the application of Matsumo as a primary reference in the § 103(a) rejections is improper, and, therefore, the § 103(a) rejections are respectfully requested to be reconsidered and withdrawn.

CONCLUSION

Having responded to all rejections set forth in the outstanding non-Final Office Action, it is submitted that claims 60-62, 72-74, 81, 83 and 84 are now in condition for allowance. An early and favorable Notice of Allowance is respectfully solicited. In the event that the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, the Examiner is courteously requested to contact Applicants' undersigned representative.

Respectfully submitted,

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MARKED UP VERSION OF CLAIM AMENDMENT

Please amend claim 84 as follows:

84. (Twice Amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a silicon nitride film containing at least one of hydrogen and oxygen over a substrate;

depositing a semiconductor film comprising amorphous silicon on said silicon nitride film;

disposing a metal in contact with at least a selected portion of said semiconductor film;

heating said semiconductor film and said metal to crystallize said semiconductor film; and

forming a channel region,
wherein said channel region is formed of the crystallized semiconductor film.

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